

Montana Laboratory Sentinel

Updates from the MT Laboratory Services Bureau



<http://healthlab.hhs.mt.gov/> 06/17/10

***Francisella tularensis*: Novel Therapeutic Approach Shows Promise Against Multiple Bacterial Pathogens**

Rocky Mountain Laboratories in Hamilton Montana

ScienceDaily (May 28, 2010) — A team of scientists from government, academia and private industry has developed a novel treatment that protects mice from infection with the bacterium that causes tularemia, a highly infectious disease of rodents, sometimes transmitted to people, and also known as rabbit fever. In additional experiments with human immune cells, the treatment also demonstrated protection against three other types of disease-causing bacteria that, like the tularemia bacteria, occur naturally, can be highly virulent, and are considered possible agents of bioterrorism.

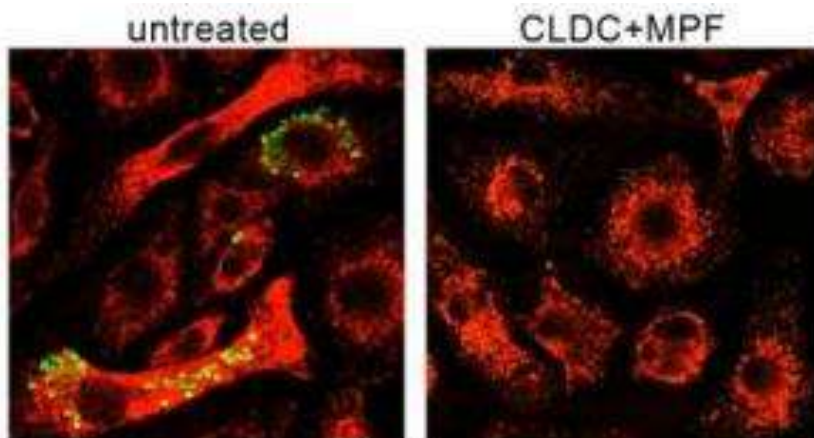
The experimental therapeutic works by stimulating the host immune system to destroy invading microbes. In contrast, antibiotics work by directly attacking invading bacteria, which often develop resistance to these medications. The therapeutic has the potential to enhance the action of antibiotics and provide an alternative to them.

"A therapeutic that protects against a wide array of bacterial pathogens would have enormous medical and public health implications for naturally occurring infections and potential agents of bioterrorism," says Anthony S. Fauci, M.D., director of the National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health. "This creative approach is a prime example of public-private partnerships that can facilitate progress from a basic research finding to new, desperately needed novel therapeutics."

Catharine Bosio, Ph.D., and her colleagues at NIAID's Rocky Mountain Laboratories in Hamilton, Mont., led the study. Study collaborators are from Colorado State University in Fort Collins and Juvaris Biotherapeutics of Burlingame, Calif. The study is available online in the open-access journal *PLoS Pathogens*.

In the study, the researchers combined components isolated from the membrane of a weakened strain of *Francisella tularensis*, the agent of tularemia, with the Juvaris product CLDC (cationic liposome DNA complexes).

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This image shows novel therapeutic protection against multiple bacterial pathogens.
(Credit: NIAID/RML)

Bioterrorism Preparedness Training for LRN Sentinel Laboratories

July 30 in Helena

Registration is open for the **BT Wet Workshop - July 30, 2010 - Helena MT.**

One-day presentation and laboratory observation of *Bacillus anthracis*, *Brucella spp.*, *Yersinia pestis*, *Francisella tularensis*, *Burkholderia spp.* and other agents. Laboratory Response Network protocols, Biosafety, & other emergency preparedness issues will be discussed.

Visit www.nltn.org/127-10.htm to register. Limit: 20 microbiologists.

Questions? Email Kathy Martinka at kmartinka@mt.gov

Montana Receives Grant for "Innovations in Quality Public Health Laboratory Practice"

The Association of Public Health Laboratories (APHL) has awarded seven grants for the "Innovations in Quality Public Health Laboratory Practice" request for proposals. The new grantees are **Montana**, Arkansas, Delaware, Michigan, Minnesota, Southern Nevada and San Francisco.

At the APHL Annual Meeting in Ohio, three of the seven grantees will helm an expert panel to discuss how their **projects will strengthen public health laboratory system** research.

For more information visit the Laboratory System Improvement section of the MT Laboratory Services Bureau website at:

<http://www.dphhs.mt.gov/PHSD/Lab/lab-sys-improvement.shtml> or contact Jan Stetzer, Laboratory System Program Manager, 406-444-0695, jstetzer@mt.gov.

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F. tularensis: Therapeutic Approach, Rocky Mountain Labs

The combination stimulated a natural antibacterial mechanism, called reactive oxygen species (ROS) and reactive nitrogen species (RNS), in immune cells that ingest bacteria. ROS and RNS attack and kill invading bacteria, preventing replication and spread of the pathogens to other cells.

Sixty percent of mice in the study survived lethal pulmonary infection with virulent *F. tularensis* when treated with the therapeutic intravenously three days before the bacterial challenge. No mice survived when given the bacterial components or the CLDC alone, demonstrating the importance of combining both to maximize protection in mouse and human cells. The treatment also showed broad usage, protecting human immune cells from bacteria that cause plague, melioidosis and brucellosis as well as tularemia. Melioidosis is primarily a tropical disease spread to humans and animals through contaminated soil and water. Brucellosis is a disease that primarily affects animals, including humans who come in contact with infected animals or animal products, such as contaminated milk.

According to Dr. Bosio, the three-day advance treatment appears crucial to providing enough time to stimulate the immune system. Any treatment less than three days in advance failed to protect the mice, she said. "We are continuing to improve the versatility of this treatment as an antibacterial therapeutic with respect to timing of delivery and efficacy," she says. "Meanwhile, CLDC plus membrane protein fractions is proving to be an excellent tool to determine how to safely and successfully stimulate the body's own antibacterial army to protect itself against highly infectious invaders."

The research team will continue to study the precise role that membrane protein fractions play in combination with CLDC, and how the combination affects the production of RNS and ROS in cells from mice and from humans.

MT Laboratory Services Preparedness Staff

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Drinking Water Emergency Sampling (DWES) Kit

The Montana DPHHS Laboratory Services Bureau (LSB) and the Department of Environmental Quality (DEQ) and have developed a Drinking Water Emergency Sampling (DWES) Kit that can be used to confirm the presence of unknown contaminants that may have been introduced to a Drinking Water system.

These DWES kits contain the bottles and personal protective equipment necessary to collect samples from a drinking water facility during a suspected or credible threat event. During an **emergency** these samples will help determine **unknown** contaminants that may be in the water supply.

The DWES kits will be located at all county health departments, public water supplies over 3300 in population, DEQ Public Water Supply Offices, Hazmat Teams, National Guard Civil Support Team, as well as the DPHHS State Laboratory.



We are excited about the increased response capability these pre-positioned DWES kits provide and look forward to building stronger relationships with the first responder community.

For more information call Joel Felix at 406-444-4115 or e-mail jfelix@mt.gov.



BIRTH RECORDS: INFO FOR CLINICIANS, PUBLIC HEALTH and INDIVIDUALS

Information from birth records has a wide variety of uses. Because essential legal relationships including nationality, name and family ties are inextricably linked to these records, registration of birth is required and the information is maintained by a government agency. In Montana this agency is the Dept of Public Health & Human Services. While confidentiality of individual birth records is strictly maintained, aggregated data from birth records provides essential information to identify the need for current services for babies and mothers and future services for the Montana population. The value of birth records relies on the accuracy and completeness of the information recorded.

This issue of *Montana Public Health Prevention Opportunities Under The Big Sky* highlights information from birth records including some data collected for the first time in 2008.

http://www.dphhs.mt.gov/PHSD/prevention_opps/MT-PH-prevent-opps-newsletters.shtml

4% of Healthcare Workers Tested Positive for MRSA

"Approximately 4% of healthcare workers tested positive for methicillin-resistant *Staphylococcus aureus* MRSA in a large screening effort" of 3,638 individuals carried out by researchers at East Carolina University. "Among those involved in direct patient care, 4.6% were positive; among nonclinical staff, 4.2% were positive. In addition, three quarters of healthcare workers involved in direct patient care who were positive were infected with a healthcare-related MRSA strain, compared with just over half (54%) of nonclinical staff." [Medscape](#) 4/6/10

MT Communicable Disease Update Weeks 21 & 22 (Ending 05/29/10 and 06/05/10)

This newsletter is produced by the Montana Communicable Disease Epidemiology Program.

Questions regarding its content should be directed to 406.444.0273 (24/7/365).

<http://cdepi.hhs.mt.gov>

DISEASE INFORMATION

Summary – Week 21 & 22 – Ending 5/29/10 and 6/5/10 – Disease reports

received at DPHHS during the reporting period May 23 June 5, 2010 included the following:

- Vaccine Preventable Diseases: invasive *Haemophilus influenza* (1), Pertussis (5), invasive *Streptococcus pneumoniae* (2), Varicella (10)
- Enteric Diseases: Campylobacteriosis (4), Cryptosporidiosis (1), *E. coli* 0157 (2), Giardiasis (4), Salmonellosis (5)
- Other Conditions: Aseptic meningitis (1), Animal Rabies (2), Legionellosis (1), Tetanus (1)
- Travel Related Conditions: None

NEW! Pertussis – There have been 14 reported cases of pertussis in 2010 to date, 9 occurring since mid-May. Please remind providers to “think pertussis” and PCR test for this. Most recent cases have occurred in Lewis & Clark and Yellowstone counties.

NEW! Rabies – Two cases of animal rabies have been detected during the last few weeks – a horse in Yellowstone County and a bat in Treasure County. Yellowstone County is now under quarantine effective June 3 for 60 days. (<http://liv.mt.gov/liv/news/2010/20100608.asp>)

Influenza - Activity level in Montana for week 21 **NO ACTIVITY.** *This is the final report for the 2009-2011 influenza season.* Thank you for your collaboration this year!!!

NEW! Summer Surveillance Activities for Influenza (subject to change if there are changes in incidence)

1. Report all laboratory confirmed (PCR) deaths due to influenza
2. Sentinel provider (9) ILI reporting via ILINet
3. The MTPHL will no longer support laboratory surveillance testing. For those laboratories that still have pre-printed surveillance request forms, please discard them. New laboratory surveillance testing request forms will be provided for the 2010-11 Influenza season, which will begin October 1. Questions? Contact Debbie Gibson, Micro and Molecular Laboratory Manager, at debgibson@mt.gov, 800-821-7284 ext 5970, or directly at 406-444-5970.

NEW! CDEpidemiology Staff – Please contact the following content experts for consultation regarding specific communicable diseases or the general number 24/7/365 406.444.0273.

Enteric, vectorborne, zoonotic diseases	Jennifer Lowell	406.444.4735
Vaccine-preventable diseases, rabies, hepatitis A	Elton Mosher	406.444.3165
Tuberculosis	Denise Ingman	406.444.0275

NEW! Influenza Guidance for Day and Residential Camps – CDC has updated guidance regarding prevention and control of influenza among campers/camp staff during the 2010 camp season. <http://www.cdc.gov/h1n1flu/camp.htm>

NEW! NIOSH Publications – NIOSH has several publications related to preventing exposures to bloodborne pathogens among first responders that are available for free from their warehouse.

Workplace Solutions: Preventing Exposures to Bloodborne Pathogens among NIOSH Publication No. 2009-111

(<http://www.cdc.gov/niosh/docs/wp-solutions/2010-139/>)

Information for Employers Complying with OSHA's Bloodborne Pathogens Standard (<http://www.cdc.gov/niosh/docs/2009-111/>)

First Responders: Protect Your Employees with an Exposure Control Plan (<http://www.cdc.gov/niosh/docs/2008-115/default.html>)

First Responders: informational poster on bloodborne pathogens (<http://www.cdc.gov/niosh/docs/2008-116/>)

First Responders: visual poster on bloodborne pathogens (<http://www.cdc.gov/niosh/docs/2008-117/>)

First Responders: Encourage Your Workers to Report Bloodborne Pathogen Exposures (<http://www.cdc.gov/niosh/docs/2008-118/>)

NEW! CDC HIV Report – The CDC several new reports on HIV last week. (<http://www.cdc.gov/hiv/whatsnew.htm>)

NEW! Hepatitis C Education – Two FREE one day trainings on hepatitis C will be offered in Billings (July 27th) and Helena (July 29th) by the Hepatitis C. Information is attached.

Rabies PEP and Exposures – As a reminder, the ACIP issued new recommendations for post-exposure prophylaxis for rabies in March 2010. The new recommendations include the use of a 4 dose regimen for post-exposure prophylaxis: <http://www.dphhs.mt.gov/PHSD/epidemiology/documents/rr5902.pdf>. The Rabies Exposure Assessment Tool can be found at <http://www.dphhs.mt.gov/PHSD/epidemiology/documents/RABIESASSESSMENTDPHHS.pdf>. ***Please share this information with emergency department and urgent care providers in your jurisdiction!***